PYROTECHNICS

THE NOW & THEN NEWSLETTER OF
GENERAL TECHNICS

PERPETRATED LARGELY BY
JEFF DUNTEMANN
& CAROL DUNTEMANN
NO. 15 AUGUST 1978

GENERAL TECHNICS

SUN POWER IS SILLY

Do you remember Sun Day? I do. All across the country, thousands of crazies painted their faces and danced around in their underwear, saying prayers to the sun to end all our problems and power our energy-hungry society. The whole concept was silly as hell. I noticed with amusement that it was cloudy over most of the country that day. Maybe the sun was hiding from all those idiots. I would have.

The heavy-rap technophobe crowd has embraced Sun Power as their answer to those who ask the salient question, If we can't have nuclear power, what can we have? Sun Power appeals because it is free, it is healthful, and it is almost illimitably powerful.

Wrong-o. On all three counts. Solar power is not free. It is perhaps the most expensive power source we have right now. Sunlight is free. But you need area and technology to turn sunlight into useful work. Real estate and technology are the two most expensive things I can think of right now, and Sun Power requires lots of both. Is Sun Power healthful? Hardly. The sun has caused far more deaths than all the nuclear reactors in the world, back to Nuclear Day One. 5000 people die of sun-caused skin cancer every year. If nuclear power had that kind of safety rating the first reactor would never have been built. And to all you sun-bunnies who toast yourself day after day, well, you look like Farrah Faucet-Washers today, but by age forty you'll look more like the Wicked Witch of the West. Nothing wrinkles like Sunshine.

Powerful? Sunlight's worst problem is that it's so terribly diffuse. Burning a square foot of weeds generates more energy than twenty square feet of sunlight. Yes, it can be concentrated, and stored, but both processes are prohibitively expensive at this time.

The time we need sunlight most is when it's not available: Right after sundown, when energy needs peak. And if the sun goes behind a cloud--zip. We've had periods in Chicago when there was constant cloud cover for fifteen or more days running. That's a long time to be without the refrigerator, people.

Sun Power is a red herring tossed into the battle over Nuclear energy. It is a distraction, a false hope. But from here it looks pretty cut-and-dried: We either develop nuclear power and the fast breeder, or we crawl back into our caves by the end of next century.

Ideally, we should decentralize power production, and get away from vulnerable superpowerplants. A neighborhood wind-turbine every few blocks, plus rooftop solar panels, storage batteries, and microcomputer-coordinated local power nets, sharing with and supporting one another, would be dynamite. But who in hell is gonna pay for all that hardware? There aren't enough rich folk in all the world to skin to pay for a setup like that. Superpowerplants are what we're stuck with.

Alternative energy sources, imaginatively applied and run without strangling government regulation or union featherbedding, could go a long way toward extending our limited energy resources. For example: Grow grain in the sun. Feed it to steers. Output is hamburger and steershit. Hamburger is good stuff. Steershit is not so popular. Which is sad, because if you heap enough steershit together, it starts making "natural" gas, good burnable methane, all by itself. It's cheap and easy. People have tried developing this energy source. They've been thwarted by ignoramuses who claim that cooking food on flames fed by gas given off by old steershit is unsanitary. The steer's asshole is twice removed from the final product, a good sterile 800 degree flame, but somehow small minds love to think about assholes and the products thereof. And so all that methane goes to waste.

There's a cactus out west with an unpronounceable name that has a funny habit: it produces something just like crude oil. You just squarsh up the cactus, and out comes the oil, ready to burn, to crack into gasoline, kerosene, and other neat stuff. We ought to be planting those pricklies by the mega-acre; it'd be like an oilfield that never runs dry. Are we doing it? Well, can you think of the name of that cactus? I can't. And I've been looking for it for days.

The proof that environmentalists are actually anti-technologists in white hats lies in this snail-darter silliness. They would have us think we can either have the dam, or the snail darter. Since only God can make a snail darter, a potential energy source worth 200 million dollars lies unfinished and idle. I'm sure that a handful of college biology majors with $100,000 could seed three dozen other Tennesee rivers with snail darters, and pretty soon we'd have snail darters coming out of our ears. If the snail darters can't survive relocating into a similar environment, they are evolutionary mistakes which richly deserve extinction. But you never hear plans to gently relocate the invaulable snail darter. No way. It's all or nothing. They picture Big Technology frothing at the mouth to exterminate Endangered Species. Technology has caused a good deal of pollution and environmental damage. It's far from blameless. But listen to the hard-core environmentalists, and see their alternative: nothing less than doing away with technology. Period. They either can't see or don't care that doing away with technology would sentence 95% of the Family of Man to a painful and certain death. This planet cannot hold 4 billion of any living thing as big as a man without a powerful and all-pervading technology to channel energy, resources, and waste through the vital processes of keeping a peaceful society alive. Yes, today technology can destroy all mankind. But look at the other side of that dark coin: lack of technology will destroy it just as quickly.

This is not a blanket condemnation of environmentalism. It is a condemnation of ignorance, of people who shout environmentalist slogans while knowing diddly about the environment and the complex ecology of human society. It is a call to imaginative thinking. We can make methane out of shit until hell freezes over, if we lose our irrational fear of shit. We can make crude oil out of cacti if we would stop laughing at the idea and do it. We can heat water with the Sun in Arizona. God knows, we could make electricity out of wind in Chicago. We could breed snail darters by the billions if we wanted to, and have our dam to boot. Why don't we? Because ignorant people, government regulators, selfish labor unions, and technophobes can't see the big picture.

GENERAL TECHNICS is an organization of fannish techies (and not techish fannies, as some wiseass reported) who share data, resources, and experience in pursuit of a good time and occasional profit. The group meets mainly at cons, hamfests, and private Berserker Weekends

MEMBERSHIP is terribly difficult to obtain. you must somehow scrape up a number of 15¢ stamps, and then at great effort write a letter explaining what your qualifications as a techie are to

Jeff Duntemann
6208 North Campbell Avenue
Chicago IL 60659

including those stamps. If the abovementioned person can read your handwriting you are an

APPRENTICE TECHIE and entitled to call yourself a member of General Technics. You will also receive

PYROTECHNICS until your stamps run out. Renewal of membership is synonymous with sending more stamps. If you decide to quit, we will use one of your stamps to send the rest back to you. If you're nuts enough to want to become a

SECRET MASTER UV TECHNOLOGY (SMUT) you had better write to

Tullio Proni
530 West Walnut
Kalamazoo MI 49007

because I don't have anything to do with it.

ANYTHING ELSE, ask me. I may not know but I guess better than anybody else around here.

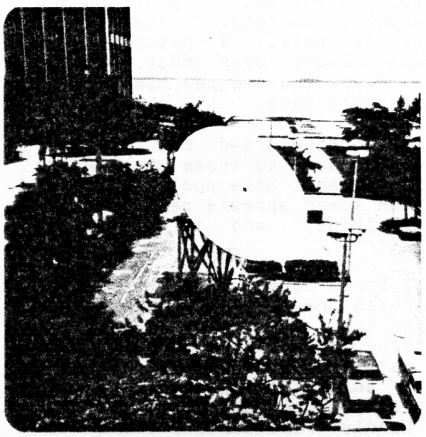
Nuclear power is necessary to keep us alive while we conquer our ignorance and see if there is any other way to power an ever-growing human society. Maybe it will be necessary forever. We won't know for awhile. But if we abandon nuclear power, we will never know. We'll be extinct, people. And the next time the snail darters get into a jam, there'll be nobody to help them out.

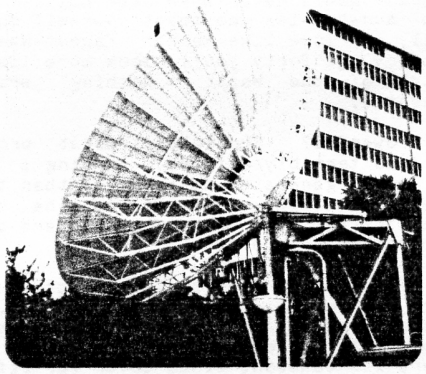
GIGO

FROM ROD SMITH--In general, I agree with you about the past. There were a few good times and places, however. Did you know that the ancient aqueduct system in Rome delivered more and better water than the modern system? These were mostly isolated cases, however. In evaluating a civilization, there are two main criteria to be considered: the lifespan of its citizens and the quality of that life. People in technologically developed countries today have an average lifespan higher than any other in history, and what people can do is limited only by their ambition. How else could Jimmy Carter become president?

(Beats me. Weirder things happen on the North Side of Chicago all the time, though. Some historians say that one cause of the fall of the Roman Empire was lead poisoning caused by too much plumbum in the plumbing. I guess the Romans were technological, but not technological enough; what they should have done was ground up a few lead pipes, force fed them to some white rats, observed the consequences, and gone back to something safer, like terra cotta or dried mud. We might all be living safely in cozy caves to this day.)

FROM COOPER--A plea to rescue me from obscurity!! I became involved with GT when Nancy Palmer and I attended SunCon. After two nights of enjoyable partying, filksinging, and conversation with GT members, we were both convinced that GT was one nifty organization, comprised of people who shared our interest in blinking lights and alien death rays as well as science and technology in general. Soon after SunCon, we both sent stamps. Nancy was listed in The Mob, received a membership badge, PyroTechnics, and PseudoTechnics. Unfortunately, in my case, the nefarious Glitch Gate struck, and although I get PT, I've been left off the membership list. Like Jane Olsen (PT #11) I feel like an invisible person. Please enter me into The Mob so GTers can know that there are two supporters (Nancy & myself) of techs and the IC way of life down here in the southern Southland. Thanks!





You may have noticed the two photos. WCIX-TV in Miami (that's sparkling Biscayne Bay in the background) where Nancy and I work, recently installed a Scientific-Atlanta satellite receiving disk. It's ten meters in diameter and works off WESTOR-II and COMSAT-II, both in synchronous orbit about 24,000 miles out. The station uses it for a daily national news feed. Construction of the main disk was interesting: it came in 12 pie-slice sections. The Scientific-Atlanta engineer explained that each section is built to a tolerance of .0025 inch. Amazingly enough, all the bolt holes in the sections aligned with those in the supporting frame and it just popped together like a snap-together plastic model. Alas, it's a receive-only unit; we had been hoping to beam messages to the stars! But in any case, there's nothing like a piece of high-technology in the parking lot.

One amusing tech-note to the contiuing CETK controversy: As reported in Starlog 14, the landing coordinates as given by the aliens are incorrect. Devil's Tower is found at 104*44'30"W, 44*36'10"N. The aliens gave 104*44'30",

40*36'10"--an error of 4 degrees latitude. The space visitors also failed to reveal the direction of the coordinates--are they north, south, east or west? Even if they went to North America, the coordinates they gave are for Pierce, Colorado! I don't believe this is being picky--the coordinates are integral to the plot. Indeed, that was a tech error of the most serious kind.

...I would like to get into laser technology, but I've had trouble getting any good books or magazines on the subject. Do you or any other GT people have any info on this?

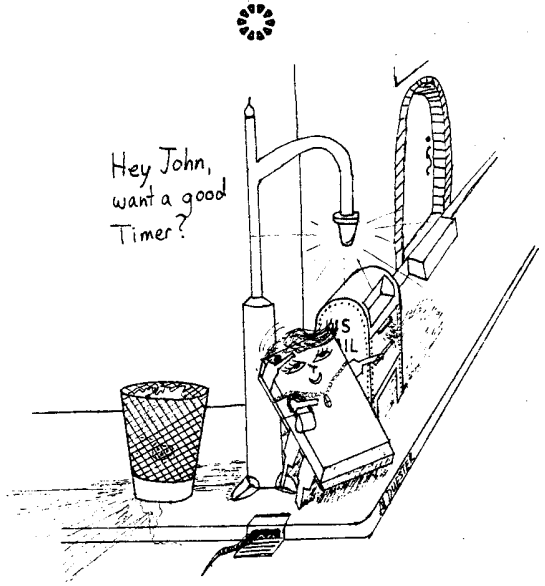
For people interested in folm and/or TV technology, I recommend American Cinematographer. This magazine has done some of the best articles on the tech aspects of film production yet. (July 1977: Star Wars issue; January 1978: CETK issue) Some TV articles, but AC is mostly devoted to film. 1 year sub: $9. Write to American Cinematographer, 1782 N. Orange Drive, Hollywood CA 90028.

For TV, it's BM/E: Broadcast Management & Engineering. Subs to BM/E are free, but you have to be connected to the broadcast industry in some way. (management, operations, engineering, etc.) That's no problem--I can supply subscription qualification cards to anyone who asks--just finagle yourself a company & title.

For those interested in non-tech aspects of TV like programming and production, there are two excellent books: The Cool Fire by Bob Shanks and Television: The Business Behind the Box by Les Brown. Both are highly-illuminating behind-the-scenes studies-- after reading them, you'll know how netweork programming and show development works and come out with a clue as to why one of this century's greatest technological achievements spews forth Laverne and Shirley.

One more magazine note: The May 1978 issue of Modern Electronics has an article on constructing an R2D2 sound effects circuit. Robot builders, take note!

(Uh, pass the crow, somebody, OK? Chomp, chomp. Chomp. Chew. Swallow. My (burp) apologies, Mike. I have no excuse, but thanks for calling it to my attention. Anyway. What's a trifling 275 miles after you've gone a thousand light years? Considering some of the other idiocies in that flick, I'll forgive Spielberg his four degrees. For a good book on beginning laser techie-projects, check out this issue's "Nertz & Boltz." First rate reading. Take it from a long-time radio-techie: Any antenna that receives can be made to transmit, at least at low power levels. If you could find the coax cable from that muther and pipe a little RF into it at its resonant frequency, you would be putting out one helluva beam. Don't count on anyone Out There hearing you, however; They're too busy watching Laverne & Shirley.)



QUARKS

Whatever happened to flatpack IC's? About six or seven years ago you could buy them from Poly Paks. There were about half a dozen different IC's at that time. Today, with the outrageous variety of devices available, you'd think flatpacks would be the miniaturizer's dream. Instead, it seems they've become extinct. If anybody knows a source of flatpack IC's, drop me a note.

My short story, "Inevitability Sphere," will appear in the September-October issue of IASFM. Pick it up.

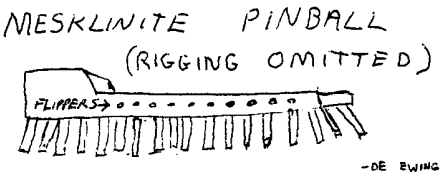
On Saturday, August 26, my sole sibling, Gretchen Duntemann, meteorologist, will marry Doug Van Dorn, journalist. May she keep his newspapers dry, and may no tornadoes go unreported.

Carol and I will not be touring the West after Iguanacon, as we had previously planned. The rigors of hardcore touristing would be just too much after the rigors of hardcore housefixing. Instead we are going to take a quiet relaxing camping trip somewhere within two hundred miles of Chicago. We'll try and pass word of where we'll be so you can stop by and visit if you want.

Mike O'Brien recently started picking up odd computer consulting jobs in the Silicon Valley for fifty busks an hour. Damnation, Mike, pretty soon you'll be making as much as a plumber!

Bob Halloran has volunteered to keep the Mob on disk and print out the mailing labels for Pyro. If you change address, send two postcards immediately: One to Bob, and one to me. Unless you mobile Americans want your Pyros to wander endlessly in the netherworlds of the Pissed Office, that's the way it's gotta be.

QUARKS//CURRENT AS OF 7/25/78 0906



MUGHOT ROW

IS YOUR MUG HERE?

Well, here I am. Still not satisfied? Well, how would you look if the wino at the passport photo place shoved you down on a stool that was moving around of its own accord, breathed Old Valve Job 250 Proof in your face and said, "Smile at duh camera, asshole!"

Chip Morningstar

Didi Ellingsen

Tullio Proni

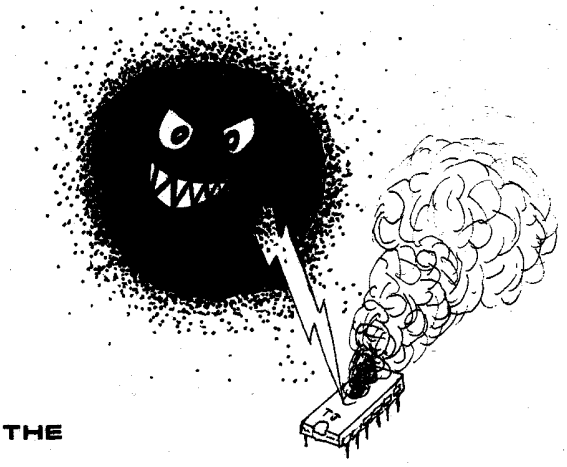
Alice Insley

Alex Ellingsen

Al Duester

Todd Johnson

Rod Smith



THE GLITCH GATE STRIKES !

BY AL DUESTER & TODD JOHNSON

Once again the forces of time, space, and the Duntemanns have combined to persuade me to write another Glitch Gate Whereupon I say to you: hearwith we go.

A. Convention Report. (Such as it is.) Milwaukee, beer capital of the United States. Thus, it seemed only natural that a convention would feel at home here. It was also only natural that on Thursday night, my dependable '59 VW should decide to take a short vacation from the rigors of transporting my bulk around. I, however, did not take kindly to this idea, as fixing took the better part of the evening, preventing me from getting my blaster working. Fix it I did, and on the next day set forth to the hallowed city of Kalamazoo, there to rondezvous with Tullio, Mark, and Ed. The bug showed what it thought of this idea by blowing off the side of its muffler just North of Kazoo.

Five of us in a Nova actually made it to Waukee, after an interminable period of time when we thought the famous Illinois potholes would finally do us in.

Friday evening found us at the Holiday Inn, where, miracle of miracles, we found Carol leading Cosmo leading Jeff--I guess it works the same way as the carrot in front of the horse. (Strong or strange indeed is the man, made of flesh or aluminum, who doesn't feel the urge to follow Carol around once in a while.--Ed.) Cosmo came topless, but there were no probloems with the hotel management or the vice squad. Later that night, after putting a bigger fuse in Cosmo (sort of robot adrenalin, I guess) he was set to the task of carrying nubile femfen around the corridors. Unfortunately, with his tricycle drive system and marginal balance, the femfen were being deposited on their backsides more than they were being driven around.

Saturday came, and with it our techie panel. Yes, folks, we have moved up in fandom. Tullio (with slides, even) and Jeff presided, assisted by myself, Dave Levine, and Waukee's Dark Techie. (He may have a name but I never caught it.) Tullio expounded on plexi-working techniques, Jeff on scrounge and robots. Naturally, we had the usual assortment of techie weapons to flash around, including Mark Hyde's laser rifle. The panel was very successful. I heard rumors that we had more people than Anne McCaffrey had at her panel. (Natch! Good tech beats the pants off silly-ass dragon stories any day of the week!--Ed.)

The business meeting convened late in the afternoon. We discussed events including the near apparent approach of Mars and Saturn, camping trips, Techie-Talkies, Masters Level qualifications, etc. I passed out some electronic goodies (more about that later,) a hat was passed for munchie money, and we all passed a motion to go to dinner.

The party that evening was somewhat damped by the mundanes across the hall, who complained that they had a 4 AM wakeup call and couldn't sleep. (I actually saw them checking at out 9 the next morning.) Maybe hotels would learn to block properly if we had a Hugo for them to vie for!

Much mirth was had with Mark's laser rifle. Various citizens and fen were amused by the bouncing red dot on sidewalks, street signs, and buildings. We even stopped a speeder by lighting up some signs a brilliant red. About the time the batteries were dying, we noticed another laser dot running over the buildings. We weren't able to discern its source, but I'd appreciate it if whoever it was would get in touch with me so we can plan a multiple laser attack at Autoclave--I have my own, and by then I should have another.

Memories return of last year's X-con, when we had a small roof party with at least a dozen people. I'm proud to say that I've been on the roof of every hotel I've attended a con at. This type of party seems to be a tradition that needs starting, so if we can get on the roof of the hotel at Autoclave, let's do it!

B. Techie-Talkies. Breaker-breaker...nought-two! Whaaaat?

The LP2700 is not dead! Right now it is in suspended animation. When Lithic Systems can find a backer to supply 100-150 kilobucks, the chip will be finalized and put on the market. As it is, the company is not on a stable enough financial base to allow them to sink this much cash into it. This info is current as of May 30, and comes from John Lightner, the president of Lithic's only distributor. He also has a large margin of control over the company from what I understand.

This fall at MTU I am supposed to start working with a microscope and wire-bonder system. This system is used for hand-bonding IC dice together. Thus, you can do without the immense, bulky, space-hogging DIP packages, and get really small! As Jeff said, "I'll believe it when I see it," but I am envisioning a Dick Tracy-type wrist-mount talkie the size of 3 normal wrist watches. Neat, huh? I project cost, if anyone else wants one, if everything works out at school, and if the LP2700 gets off the ground (The biggest damned if I've heard this year.--Ed.) to be around $200. Not cheap, but it takes a lot of time and testing. Parts that size aren't easy to find. Notice, for example, the puzzled look on the face of the nice Radio Shaft man when you politely ask for 25 LM555 'dice.' Needless to say, a lower priced alternative is needed--something under fifty bucks. Here are the issues at hand.

1. Power. The signal must be able to punch through a Worldcon hotel. From a number of different sources I have spoken with, I have heard that 100mw is not enough. 300 seems to be the level to shoot for. This is for a reliable contact. If someone shuts you up in a grounded steel room, you will probably have to increase power dramatically. (Probably high enough to burn a hole in the wall.)

2. Power source. One charge should keep a talkie running on standby for at least 20 hours, with the ability to handle 15 minutes of transmission/reception. This should be quite easy to achieve on a belt-mount version using AA cells. Naturally my wrist model wouldn't be able to keep this up. It would use either lithium cells, or alkaline flat-pak batteries.

3. Frequencies. Several options are open. We could go ham, and use the 2 meter band. We can see if the FCC changes 222-224 Mhz to another CB

band. (We had better not see that...the proposal has been killed, thank God. There must be another way, Al.--Ed.) We can see if the FCC allocates 900Mhz for an advanced level CB. We can be.....secret. The higher frequencies impose line of sight problems, and higher component costs. Also, the upper operating frequency limit of the LP2700 is not known.

4. Licensing. This comes in if we go 2 meters, boost the power, etc. Also known as hassles. Jeff knows more about this.

5. Channels. One, two, or more? I recommend 2 for the same reason that I like to have two bathrooms in the house. Whether we need more depends on how much we plan on using the system.

6. Selective calling. This is what makes the Techie-Talkie system so disireable. The ability to contact one specific person in a matter of seconds, right there at your fingerstips. In another word, egoboo.

We have already started assigning call numbers for this and other purposes (see Pyro #10.) Question: Should we use 12 or 16 key TouchTone? In my opinion, 12 is enough. However, everybody and his brother on 2 meters has a 12 key pad. We may want the other 4 buttons for special functions, such as autopatch or repeater control. This would also expand the number of calling stations available, should our embership keep growing at its current rate. (Arrgh!--Ed.) Do we even want to use TouchTone? With the coming of complete microcomputers on a single chip, it might be better to use digital data transmission. That way we have a unique system. One 18 pin micro would certainly be preferable to a whole ream of 567's. There is a problem in this, as I believe it is currently illegal to transmit ASCII on ham radio. I don't know about special digital codes--after all, Morse is just another binary code. Single chip encoders are available for either 12 or 16 button TT. Does anyone know if there is a single chip programmable TT decoder on the market yet? (Yes, there is--sorta. Mostek has an IC which decodes all sixteen keys--but you have to hang a good active filter in front of the input to separate the upper and lower tone groups. I'd try it, but active filters are tricky, and the damned thing costs thirty five bucks to begin with. Sigh.--Ed.)

7. Phone-patch/autopatch. This is so you can call the restaurant down the street for reservations without leaving the group of fifty which has gathered in the hotel lobby waiting to go... A circuit to block long-distance calls will be needed, as will a means of identifying the unit doing the calling for statistical and business purposes. Again, using the 16-key pad would prevent outside users from accessing the machine. Microprocessor control would make the system even tighter.

8. Repeater. Gee, it would be nice to be able to call in from across town to announce that Whizbang Electronics just offered a sale on laser tubes for $5.97 plus tax. Many other advantages are to be had with this increase in communications power. A fairly sensitive receiver would be needed to pick up low power units from across tn.

9. What the hell...digital time system. One extra chip would give us a digital watch with a programmable alarm function. Useful for things like reminding you that there is a panel to attend, or a wakeup backup system for inefficient hotels.

10. Controls. Vuurrry small controls, at least for my wrist model. SPST for the keyboard matrix. I'm thinking of making my own elastomer keyboard, since no one makes one small enough. Volume and squelch controls, and channel select switch. Do we want a manual ptt switch, or can we develop a good enough VOX? (If we can make this beast work, I wouldn't be surprised if we could walk on water.--Ed.)

11. Case. Proni special, with see-thru sides? Glittering plexi would be beautiful. Another possibility is vacuum-formed black styrene. If a mold is made, I can probably have a few dozen run off at no charge. The styrene is a ripple-type finish. Ask Steve Johnson or myself to see the small cases I've made.

12. Mounting. A belt (or wrist) mount, either clamp or velcro, is a necessity. Ever hear the wonderful snapping sound plexi makes when you sit on it? It should look like an integral part of the case--no outcroppings that are easy to break off.

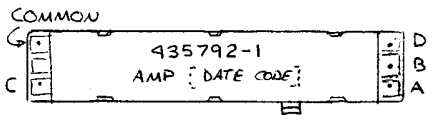
D. For those of you in my fan club, you may be interested to know that I have an interesting summer job at good pay, with overtime every day. How I got it was intriguing. I put down "Masters Level member of General Technics" on my resume. Then, when the inevitable question, "What is it?" comes up, a simple reply of "It's an international organization centered in the American Midwest, devoted to the propagation and devlopment of technology and technologically related ideas," leaves the questioner thoroughly stunned, making him or her easy prey to your pitch on how interested you are in what the company is doing, how educational an experience it would be, etc. etc. etc.

I service microcomputer controllers for microwave ovens. It's interesting, but it can be sheer torture. Imagine working next to bins and bins of thousands of LEDs, dipped tantalum caps, IC's, transistors... Fortunately, whenever one hand gets hot and sweaty and starts reaching, the other hand grabs the can of Freezit spray and fires. So far this has kept the problem under control. Both hands happily pitch in at lunch time, when I go through the garbage bins. (No, not for food--we throw out dozens of reed switches and caps every day on old boards. I carry home a few pounds of scrounge every day. I'm building up quite a supply of odd parts, and I've located the obsolete stock section, where I will probably be allowed to put my pockets to good use.

d Those of you who were at X-Con remember my handing out of junked elastomer keyboards and other goodies. I'd like to introduce the rest of you to convention Trade-A-Rama. Myself, Clyde Jones, and Jim Lisowski all brought various bits of junque for sale, trade, or freebie to X-Con. I plan on doing the same thing at all the cons and berserkers I get to this summer, and I wouldn't mind if everybody brought stuff-- thi summer, and I woulnd't mind if everybody brought stuff--sort of a micro-mini hamfest. Naturally, traders get first pick of the goodies!

FIG. 1

TOP VIEW OF SWITCH



Decimal	BCD	Gray
	ABCD	ABCD
0	0000	0000
1	0001	0001
2	0010	0011
3	0011	0010
4	0100	0110
501	0101	0111
6	0110	0101
7	0111	0100
8	1000	1100
9	1001	1101

Note: This is the Gray code according to the switch. The text used in the micro intro course at Tech differs in that 9 Gray is 1000.

Those BCD slide switches I handed out, by the way, are not BCD switches at all, but rather Gray code. Gray code is a type of coding where only one bit changes state at a time. A computer sampling the switch will not sense some weird code while the mechanical contacts are in the middle of changing several bits. To make this clearer, check out Fig. 1 for a comparison of decimal, BCD, and Gray codes, and for switch pinouts.

Besides having a limited number of these switches (AMP #435972-1) left, I am accumulating a small selection of GE V130LA10A Varistor surge protectors, GE SC146D and 7726 triacs, reed switches, 19KV oil furnace igniters, and let's not forget dipped tantalum cap fandom. I also have a few RCA7641 D2201N diodes. These are supposed to be 600V, 1A diodes with a fast recovery time of 3 microseconds. They were rejected for greater than 15 microamps reverse current flow at 600V. Some of each of the above will be coming to autoclave. By that time I should have a more complete list printed up.

E. The Compleat Techie is hereby declared dead. The only folks who sent schematics were Todd Johnson and Kurt Sakaeda. Needless to say, they did not make a very big book.

F. For those of you who haven't already heard, the neatest mail order house yet is Chaney Electronics, PO box 27038 Denver CO 80227. This guy bought almost all of Honeywell's parts inventory when the electronic flash division went out of business. Prices are very good for the most part, delivery is about 8 days, and the parts seem to be good stuff. He has the largest selection of techie goodies of any catalog, including flash tubes and units, microminiature parts, and lots more unusual stuff.

G. Go down to your local dealer of hearing aids and ask for scrapped units. They're a good source of little speakers, microphones, pots, resistors, and caps.

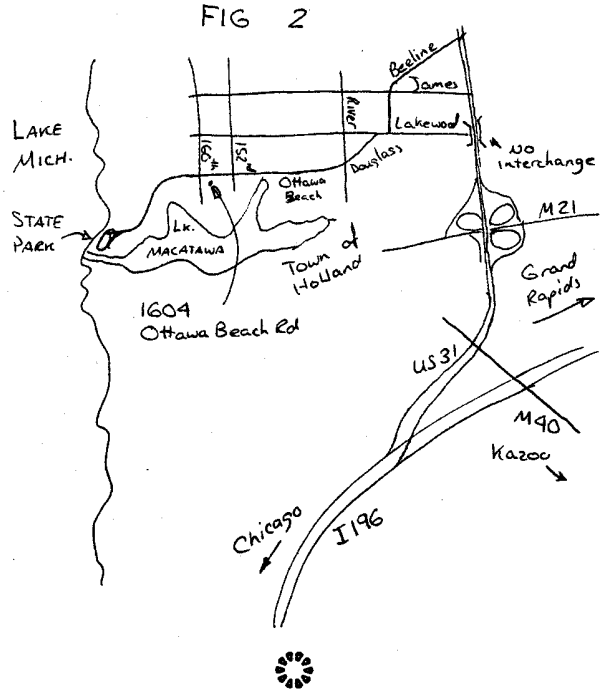
H. GT T-shirts. Since we're assigning call numbers, how about shirts with the numbers on them? I'd like to see a large GT on the chest (You're the only one who'd like to see that so far, Al. I've got the stencil. But nobody wants the big logo.--Ed.) small ident numbers on shirt sleeves at the shoulders, and General Technics written across the back. The shirts would be white on black, short sleeved. Anybody interested?

I. Berserker at my house (Holland) August 12 and 13. Please let me know in advance if you plan on coming, and plan to arrive after 9 AM on Saturday morning. Since I work second shift, I can't get up too early. See Fig. 2 for a map on how to get here. Last year's wasn't too exciting, but nonetheless, we did have some fun. There was wiring up robot motors, batteries, and a kitchen chair for tooling around the driveway, 3/4 pound hamburgers on the barbecue, BS sessions, and general relaxation among friends.

The typewriter ribbon is wearing thin, but before I go I'd like to share a news story that I heard on the radio the other day.

It seems that the strife and tension in Africa are affecting the scientific world also. Currently a movement is underway to save a very rare species of cattle from extinction at the hands of guer illas and hungry villagers. In the war-torn country of Zaire, scientists from the United Nations Agricultural Assistance Program have verified that there are only six (four male, two female) of these animals left alive. This was contrary to earlier reports that large numbers of the solidly-built cattle are kept in herds around the Mediterranean. Those cattle were supposedly brought up from Zaire by wandering nomads some hundreds of years ago. Careful tests, however, proved conclusively that the Zaire cattle were indeed unique. The Mediterranean cattle were really.....Zaire-Ox Copies.

FIG 2



NERTZ & BOLTS
& LOOKS AT BOOKS

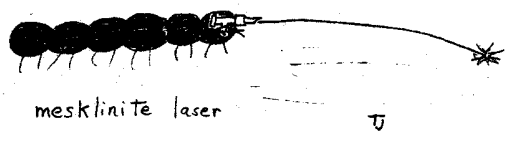
How to Build a Low Cost Laser by Ronald M. Benrey (Hayden Books No. 5934-5 softcover, 106 pp)

It surprised me to see just how little went into making a gas laser. If I didn't have eighteen other things to fiddle with right now I'd probably buy one just for the hell of it. I'd be curious to try figuring telescope mirrors with one, not to mention the joys of driving winos crazy from the fifteenth floors of con hotels.

According to this book, any techie with an IQ greater than seventy could throw a decent gas laser together in a weekend or less. This assumes, of course, that you buy a laser tube with integral mirrors and electrodes. Granting that, about all you have to do is build a power supply and rig a solid mechanical support for the tube.

The construction information is good. The author lists sources for all parts. Again, actual construction is pretty trivial.

The real meat of this book lies in the section on do-it-yourself holograms. It describes a home-made optical bench built from copper pipes and fittings, and carefully puts forth all the data you'll need to make those tricky 3-D shots of your chess set. Not an exhaustive text by any means, but it will definitely get you started.



Wind-Solar Energy by Edward M. Noll (Sams No. 21305 softcover, 208 pp)

This book belongs right up there next to your CMOS Cookbook, gang. It's a winner. For once we abandon solar water heaters and take a good hard look at using the sun and wind to produce electricity directly. Notwithstanding the editorial in this issue, I am fiendishly interested in solar power. (Not Sun Power, which is a popular nut cult.) Wind energy is solar energy once converted, remember, and the wind has been known to blow at night. Wind and sun go hand in hand when speaking of alternative energy sources.

The theory of photovoltaic energy sources is well covered, but the practical aspects get just a shade shortchanged in my opinion. No mention was made, for example, as to whether there is an advantage in setting up a flat mirror by a solar panel and doubling the solar flux falling on the panel. Would that damage the panel? How would it affect voltage and current output? With the current cost of solar panels, that is a very important question. I suspect that the current high cost of a worthwhile solar panel (in excess of $350 for one capable of charging a car battery) prompted Noll to spend more time on wind power.

Well that he did. There are a whole lot more variables involved in turning wind into electricity, and Noll goes at it with enthusiasm. He speaks of aerodynamics and the design of turbine blades, of non-directional vertical turbines, of turbines made from 55 gallon oil drums, of using old car alternators and generators, even the nitty-gritty details of how to set a windmill tower into a poured concrete base.

In all areas, the prose is crisp and lucid. The graphs, especially those covering storage batteries, are fascinating. This whole field is a great one for tinkering, even though the costs are relatively high. Pumping energy out of the environment with no damage to or depletion of the environment is at once a kick and a glimpse of the future. We will have fusion, let us pray, but it's a wise man who doesn't put all his faith in Com Ed. I think it may be high time to put the Windy City to work.

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TECHIE ROOM PLANS

Well, we've got our techie room at Iggy-con, and thereby have become an official fannish in-group on a worldwide level. If we ever expect to do it again, we had better put on a good show. A good show requires good planning. Good planning requires that I know what's going to be available to put on a good show.

So--included with this Pyro is a form. If there is anything greater than zero chances of you making it to Iggy, fill out the form and mail it to me fast.

What do we want? Three things: people, gadgets, and ideas. Apparently, as of the middle of July, we don't have to share our room with anyone for the duration of the con. We can open and close when we like, operating 24 hours if we please. The more people we can muster to work the room, the longer we can keep it open. I think we'll close it during Big Events like the Hugo ceremonies and the masquerade, unless somebody prefers to spend such events in the techie room. It's up to you.

Rules. As few as possible, but we have to protect what's in the room. So we need a couple of rules.

1. Two members must be on hand in the room at all times, and the more the better. One of those members has to stay at the visitors' desk we will set up near the door. Ostensibly that desk will be the main point for signing the guest book and passing out freebie publications. Actually, it's for keeping an eye on what goes out that door.

2. Maybe I'm going out on a limb for this, but I'm going anyway. No smoking at any time in the techie room. There will be no ashtrays. There will be a smoke detector which I will bring. Guests who smoke will be asked to leave. Members who smoke in the room will get a heart-to-lungs talk by several of us. And risk becoming pretty unpopular in GT. Smokers are a very small minority in our organization. Please respect the majority's request for unsullied air. Do what you like with your lungs, but don't do it in the techie room.

So much for rules. Other pointers are just common sense and courtesy. Keep it clean. Keep it safe. Keep an eye on your goodies so they don't "get legs." As a bona fide hospitality room we apparently can serve any and all kinds of solid and liquid refreshments. We'll probably pass the hat to finance munchee expeditions. Contribute what you can, but if you're poor, don't feel guilty.

Selling things in the room may or may not be permitted. I personally don't see why not. But the jury's still out on it. As soon as I hear a definite decision from the concom I'll spread it around.

We will be having a number of very expensive computers in the room, and frankly, I'm worried about security when we lock the room up. All locks have keys, and after Suncon I'll trust hotel employees about like I'd trust a man named Spiro Milhous Arnold. What I'd like to see is one or two people bunking inconspicuously on the floor while the room is closed and locked up. It may not be strictly permissible, but if we stay discreet about it we shouldn't have any hassles. You midnight guardians should keep an instamatic camera in your sleeping bags, and if any shady sorts come a calling, wait until they pick something up and then snap them. Then throw the camera into the bottom of the sleeping bag and scream bloody murder. I would like nothing more than to get a few union goons fired on their lazy thieving butts.

I've you've got a computer, think about bringing it. There's no better way to show it off, I promise you. If you have any kind of interesting techie gadget, especially home-made, think of bringing it. There'll be a home-made ham station there, and we could use some lasers, color organs, synthesizers, you name it. We want to show people how much fun technology can be.

If you're driving to Iggy and have some room, indicate it. You might be able to help somebody get there who otherwise could not. If you have any ideas on how to make our techie room more fun, be sure to send them along. We need those most of all. If you make it work, it will work. And we can all be proud.

PyroTechnics needs:

Cartoons, Construction Projects, Con Reports, Techie Book Reviews, Paper, and New Ideas. Send All Of The Above to The Below:

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